

# INSECT PEST PROBLEMS FOR RED RIVER VALLEY SUGAR BEET GROWERS IN 2006

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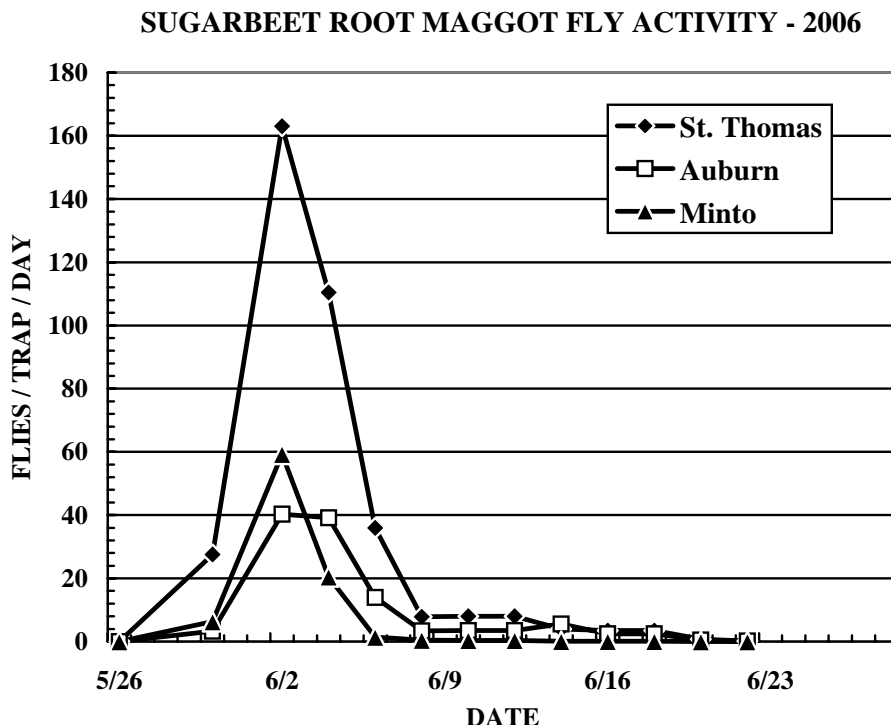
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## Sugarbeet Root Maggot:

Root maggot fly activity was monitored by personnel from North Dakota State University at twelve Red River Valley sites in 2006. The work was funded cooperatively between American Crystal Sugar Company, the Sugarbeet Research & Education Board of MN & ND, and NDSU.

Fly activity in beet fields typically peaks during the second week in June in most areas of the Valley. In 2006, activity began much earlier than normal. This is especially unusual, given that activity had been unusually late during the past few years. The first flies of 2006 were observed during the week of May 22, and activity rose sharply during the subsequent two weeks. Activity peaked on June 2 at St. Thomas and Minto, ND, and decreased sharply in less than one week (Fig. 1).

In most sites south of Grand Forks, fly activity was low; however, extremely high counts were recorded near Baker and Sabin, MN, as well as Casselton, ND. A total of 1,875 flies were captured on three sticky stakes in the Baker area, and the larval infestation there caused fairly heavy scarring injury on roots (5.6 on the 0 to 9 scale of Campbell et al. [2000]) in some fields, thus indicating the potential for a high root maggot fly population in 2007. In the Casselton area, a total of 1,380 flies were trapped; however, subsequent damage rating surveys suggested that growers were successful in controlling the infestation because average root injury ratings were low (2.25). Growers in the Casselton area should be wary of the moderate potential for damaging populations in 2007.



**Fig. 1. Sugarbeet root maggot fly activity, Auburn, Minto, and St. Thomas, ND, 2004**  
(counts represent flies captured on sticky stakes on a per-trap per-day basis).

Dry weather prevailed during much of the growing season after peak fly activity had subsided. This may have resulted in less-than-optimal insecticide performance in some areas, especially for growers that applied postemergence treatments to heavily infested fields after the first full week of June. Very little rainfall occurred after that week. Thus, postemergence materials would not have had rain for effective activation or incorporation into the soil. One factor that may help mitigate this situation for 2007 is that the hot and dry weather could have also decreased SBRM egg survivability. This appeared to have been the case in some fields, because NDSU assessments of root feeding injury indicated that fields in the northern portion of the Valley incurred reduced levels of root maggot feeding injury than had been observed in several of the preceding years. Despite this possible reduced root maggot survival in some fields, growers should remain vigilant and monitor fly activity in their fields to determine the need for postemergence control measures in 2007. Even moderate levels of survival in one season can be sufficient to result in economically damaging populations during the following year.

#### **Cutworms:**

Cutworms were a problem for some growers in the MinnDak, Moorhead, Crookston, and Hillsboro factory districts from mid-to late-May of 2006. Darksided and redbacked cutworms are the species most likely to cause early-season problems in sugarbeet. Black cutworms and variegated cutworms can also cause problems later on in the season. Soil moisture often dictates the likelihood of a successful insecticide application. Cutworm larvae are more likely to feed at or above the soil surface and on plant leaves if field conditions are moist to saturated. Larvae will spend much of their time below the surface if soil is dry. Under moderate soil moisture conditions, larvae will remain under the soil surface during daylight hours and feed at night. Afternoon and evening applications of foliar liquid insecticides tend to perform very well against cutworms under such conditions. If soil conditions allow, treatment will usually be warranted if 4 to 5% of seedlings have been cut.

#### **Leaf-feeding weevils:**

Reports of leaf-feeding weevils causing injury to sugarbeet fields were received from the Southern Minnesota production area during the last ten days of May. Feeding injury to the plant from this insect is usually most extensive on interveinal areas of leaves. Historically, this insect has occurred in noticeable levels about once every six to seven years since at least the mid-1970s (Khan et al. 2004). No specific insecticide is labeled for their control; however, foliar materials labeled for use in sugarbeet that have insecticidal activity as stomach poisons (e.g., Asana, Lorsban 4E, and MustangMax) will most likely provide adequate control of this pest.

#### **Leafminers:**

Leafminers that infest sugarbeet are the larval stage of a small, clear-winged fly. The larva is a pale- to lime-green worm that is tapered from front to back. After hatching from a white oval egg, the larva quickly works its way between the upper and lower leaf surface and creates “mines” as it feeds on the interveinal area of the leaf. Eventually, the areas most heavily fed upon will become necrotic and turn tan to brown in color.

Moderate levels of leafminer infestations were reported in a few fields in 2006. Infestations seemed to be worse in the central and southern portions of the Valley, and most occurred in mid- to late-June. Although the injury observed was of concern, no major economic losses were reported.

#### **Lygus Bugs:**

Moderate and light infestations of Lygus bugs were scattered throughout much of the central and southern RRV in 2006. Some fields required treatment with a foliar insecticide; however, most infestations were at tolerable levels. The infestations were likely a product of the mild 2005-2006 winter (i.e., moderate temperatures, combined with good snow cover), which could have allowed for good survival of the overwintering adults in the plant debris of shelterbelts and field margins.

#### **Springtails:**

Springtails caused early spring feeding injury and significant stand losses in several sugarbeet fields during the 2006 growing season. Affected fields were concentrated in the southern Red River Valley in Cass and Richland Counties of ND, and Clay and Wilkin Counties of MN.

#### **Wireworms:**

A heavy wireworm infestation developed at the NDSU sugarbeet field trial location near St. Thomas, ND in 2006. Wireworm feeding injury was also observed at the Prosper Research Farm near Prosper, ND. Wireworm infestations often go undetected because of the widespread use of planting-time soil insecticides. NDSU research indicates that Counter 15G provides good protection from stand losses associated with wireworm injury. MustangMax insecticide also appears to provide moderate to good wireworm control; whereas, chlorpyrifos-containing insecticides (e.g., Lorsban 15G and many generic products) will not provide adequate protection from wireworm injury in sugarbeet.

#### **References Cited:**

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